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2831

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Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/817,074

Applicant(s)

MITCHELL ET AL.

Examiner

Eric Thomas

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-78 is/are pending in the application.
- 4a) Of the above claim(s) 27-38 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 42,43 and 48-53 is/are allowed.
- 6) ☒ Claim(s) 1-26, 39-41, 44-47, 54-78 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/05</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### INTRODUCTION

The examiner acknowledges, as recommended in the MPEP, the applicant's submission of the amendment dated ~~1/19/06~~ <sup>11/14/06</sup> -ET 2/1/06. At this point, claims 14, 42, 48, 51, 53 have been amended; claims 27-38 have been withdrawn. Thus claims 1-26, 39-78 are pending in the instant application.

The indicated allowability of claims 14-17 is withdrawn in view of the newly discovered reference(s) to Amatucci et al. (US 6,181,545). Rejections based on the newly cited reference(s) follow.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1. Claims 1, 3 are rejected under 35 U.S.C. 102(b) as being anticipated Koji et al. (JP 04067610).

Regarding claim 1, Koji et al. disclose an energy storage device comprising a mix of carbon and binder particles. Because the electrode is formed from a dry process, it is possible to use carbon particles again.

Regarding claim 3, Koji et al. disclose the mix consists of no processing additives.

2. Claims 1-3, 21-26, 64-67, and 77-78 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayashida et al. (US 5,100,747).

Hayashida et al. disclose an energy storage device product comprising a mix of recyclable carbon and binder particles.

Regarding claim 2, Hayashida et al. disclose at least some of the mix is dry fibrillized.

Regarding claim 3, Hayashida et al. disclose the mix consists of no processing additives.

Regarding claim 21, Hayashida et al. disclose a dry mix of recyclable dry binder particles and dry carbon particles, the particles formed into a continuous (wound in fig. 22) self-supporting electrode film (inherent feature - using 4 % PTFE) without the use of any processing additives.

Regarding claim 22, Hayashida et al. disclose the processing additives includes hydrocarbons, high boiling point solvents, antifoaming agents, surfactants, dispersion aids, water, pyrrolidone, mineral spirits, ketones, naphtha, acetates, alcohols, glycols, toluene, xylene, and/or Isopars.

Regarding claim 23, Hayashida et al. disclose the dry binder is a dry fibrillized binder.

Regarding claim 24, Hayashida et al. disclose the binder is fibrillized. Regarding the limitation, "the binder is fibrillized by a high pressure gas" is a method of forming the device. The method of forming the device is not germane to the issue of patentability of

the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965)

Regarding claim 25, Hayashida et al. disclose the binder is fibrillized under a shearing force. Regarding the limitation, "the binder is fibrillized by a high pressure gas" is a method of forming the device. the method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965).

Regarding claim 26, Hayashida et al. disclose the binder is fibrillized under a shearing force. Regarding the limitation, "the binder is fibrillized by a high pressure gas" is a method of forming the device. The method of forming the device is not germane to the issue of patentability of the device itself. Therefore, this limitation has not been given patentable weight. In re STEPHENS, WENZL, AND BROWNE, 145 USPQ 656 (CCPA 1965).

Regarding claim 64, Hayashida et al. disclose an energy storage device structure, comprising one or more recyclable electrode film, wherein the one or more recyclable electrode film is both conductive and adhesive and wherein the one or more recyclable electrode film is coupled directly to a current collector.

Regarding claim 65, Hayashida et al. disclose an energy storage device structure comprising one or more self-supporting recyclable dry process based electrode film.

Regarding claim 66, Hayashida et al. disclose the film comprises conductive and adhesive particles.

Regarding claim 67, Hayashida et al. disclose the adhesive particles comprise a thermoplastic.

Regarding claim 77, Hayashida et al. disclose the recyclable dry electrode film comprises substantially no processing additive.

Regarding claim 78, Hayashida et al. disclose an energy storage device comprising dry process recyclable electrode means for providing electrode functionality in an energy storage device.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 4-13, 18, 54-63, 69-72, 74-75, are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashida et al. (US 5,100,747) in view of Goller et al. (US 4,313,972)

Regarding claim 4, Hayashida et al. disclose an energy storage device comprising a film, the film including a mix of particles. Hayashida et al. disclose a housing vessel to recover the mixed material not attached to the substrate.

Hayashida et al. disclose the claimed invention except for the mix comprising a mixture of recycled particles.

Goller et al. teach that it is well-known in the art to recycle mixtures that are recovered from a process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode from recycled particles from housing vessel (30) back into the process as suggested by Goller et al, since such a modification would recycle the mixture thereby reducing waste.

Regarding claim 5, Hayashida et al. disclose the particles are fibrillized.

Regarding claim 6, Hayashida et al. disclose the recycled particles are fibrillized (from element 30).

Regarding claim 7, Hayashida et al. disclose the film is a self-supporting film (see binder content).

Regarding claim 8, Hayashida et al. disclose the claimed invention except for the film comprises a thickness of less than 250 microns. It would have been an obvious

matter of design choice to form the film having a thickness of less than 250 microns, since such a modification would have involved a mere change in the size of a component, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re. Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 9, Hayashida et al. disclose the claimed invention except for the film has a length of 1 meter. It would have been an obvious matter of design choice to form the length of the film to be at least 1 meter, since such a modification would have involved a mere change in the size of a component, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re. Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 10, Hayashida et al. disclose the film is coupled directly to the substrate.

Regarding claim 11, Hayashida et al. disclose the film comprises substantially no processing additives.

Regarding claim 12, Hayashida et al. disclose the substrate comprises a collector.

Regarding claim 13, Hayashida et al. disclose the product comprises a collector, and wherein the film is coupled to the collector.

Regarding claim 18, Hayashida et al. disclose at least some of the particles comprise fibrillizable fluoropolymer and carbon particles.

Regarding claim 54, Hayashida et al. disclose, an energy storage device comprising a continuous self-supporting intermixed film (see example amount of



fluoropolymer) structure comprised of carbon binder particles, the film structure consisting of zero parts per million processing additives.

Hayashida et al. disclose a housing vessel to recover the mixed material not attached to the substrate.

Hayashida et al. disclose the claimed invention except for the mix comprising a mixture of reused carbon binder particles.

Goller et al. teach that it is well-known in the art to recycle mixtures that are recovered from a process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode from reused particles from housing vessel (30) back into the process as suggested by Goller et al, since such a modification would recycle the mixture thereby reducing waste.

Regarding claim 55, Hayashida et al. disclose the processing additives includes hydrocarbons, high boiling point solvents, antifoaming agents, surfactants, dispersion aids, water, pyrrolidone, mineral spirits, ketones, naphtha, acetates, alcohols, glycols, toluene, xylene, and/or Isopars.

Regarding claim 56, Hayashida et al. disclose the intermixed film structure is an electrode film.

Regarding claim 57, Hayashida et al. disclose the film structure is an energy storage device electrode film.

Regarding claim 58, Hayashida et al. disclose the claimed invention except for the electrode film comprises a capacitor electrode film. It has been held that a recitation

with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. Ex parte Masham, 2 USPQ2d 1647 (1987).

Regarding claim 59, Hayashida et al. disclose an energy storage device comprising a housing (64, 67), a collector, the collector a having an exposed surface; an electrolyte (col. 6 lines 23-25), the electrolyte disposed with the housing; an electrode film, the electrode film comprises of particles (from 30), wherein the electrode film is impregnated with the electrolyte, and wherein the electrode film is coupled directly to the exposed surface. Hayashida et al. disclose a housing vessel to recover the mixed material not attached to the substrate.

Hayashida et al. disclose the claimed invention except for the mix comprising a mixture of recycled particles.

Goller et al. teach that it is well-known in the art to recycle mixtures that are recovered from a process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode from recycled particles from housing vessel (30) back into the process as suggested by Goller et al, since such a modification would recycle the mixture thereby reducing waste.

Regarding claim 60, Hayashida et al. disclose the electrode film is substantially insoluble in the electrolyte.

Regarding claim 61, Hayashida et al. disclose the electrode comprises a binder wherein the binder is substantially insoluble in the electrolyte.

Regarding claim 62, Hayashida et al. disclose the binder comprises a thermoplastic and wherein the thermoplastic couples to the electrode film to the collector.

Regarding claim 63, Hayashida et al. disclose the claimed invention except for the electrolyte is an acetonitrile type of electrolyte.

Acetonitrile type electrolyte is well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrolyte of Hayashida et al. using the well-known acetonitrile type electrolyte, since such a modification would provide an electrolyte having good electrically conductivity, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

Regarding claim 69, Hayashida et al. disclose an electrode comprising a collector; and a dry processed based electrode film, wherein the electrode film is coupled to the collector, wherein the electrode film comprises recycled conductive particles and binder particles. Hayashida et al. disclose a housing vessel to recover the mixed material not attached to the substrate.

Hayashida et al. disclose the claimed invention except for the mix comprising a mixture of recycled particles.

Goller et al. teach that it is well-known in the art to recycle mixtures that are recovered from a process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode from recycled particles from housing vessel (30) back into the process as suggested by Goller et al, since such a modification would recycle the mixture thereby reducing waste.

Regarding claim 70, Hayashida et al. disclose between the collector and the electrode film there exists only one distinct interface.

Regarding claim 71, Hayashida et al. disclose the binder particles comprise a thermoplastic.

Regarding claim 72, Hayashida et al. disclose the conductive particles comprise conductive carbon.

Regarding claim 74, Hayashida et al. disclose the conductive particles comprise a metal.

Regarding claim 75, Hayashida et al. disclose an energy storage device structure comprising a plurality of dry processed carbon and binder particles formed as an electrode, wherein as compared to an electrode formed of a plurality of substantially similar carbon and binder particles processed with a processing additive, the intermixed dry processed carbon and binder particles comprise less residue. Hayashida et al. disclose a housing vessel to recover the mixed material not attached to the substrate.

Hayashida et al. disclose the claimed invention except for the mix comprising a mixture of recycled particles.

Goller et al. teach that it is well-known in the art to recycle mixtures that are recovered from a process.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode from recycled particles from housing vessel (30) back into the process as suggested by Goller et al, since such a modification would recycle the mixture thereby reducing waste.

6. Claims 1, 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman et al. (US 6,245,464) in view of Lain (US 6,447,669).

Regarding claim 1, Spillman et al. disclose an energy storage device comprising a mix of carbon and binder particles (col 3 lines 55-65).

Spillman discloses the claimed invention except for the carbon particles are recyclable.

Lain teaches that it is known in the art to recycle carbon and metal particles from energy storage devices.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recycle the particles of Spillman as taught by Lain, since such a modification would allow the energy storage device to be recycled (environmentally friendly).

Regarding claim 3, Spillman disclose the energy storage device comprises no processing additive (see method of forming electrode).

7. Claims 4, 10-13, 18-20, 69, 71, 73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koji et al. (JP 04067610) in view of Hirahara et al. (US 6,094,338).

Koji et al. disclose an energy storage product comprising: a film, the film including a mix of particles.

Koji et al. disclose the claimed invention except for some of the particles are recycled particles.

Hirahara et al. teach that it is known in the capacitor art to form carbon powder from a recycled material (sawdust)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a recycled carbon material in the capacitor of Koji et al. since such a modification would provide a high surface area material.

Regarding claim 10, Koji et al. disclose the film is directly connected to a substrate.

Regarding claim 11, Koji et al. disclose the film comprises no processing additives.

Regarding claim 12, Koji et al. disclose the substrate comprises a collector.

Regarding claim 13, Koji et al. disclose the product comprises a collector, and wherein the film is coupled directly against a surface of the collector.

Regarding claim 18, Koji et al. disclose at least some of the particles comprise fibrillizable fluoropolymer and carbon particles.

Regarding claim 19, Koji et al. disclose the carbon particles comprise activated carbon particles and conductive particles.

Regarding claim 20, Koji et al. disclose at least some of the particles comprise thermoplastic particles.

Regarding claim 69, Koji et al. disclose an electrode, comprising a collector; and a dry process based electrode film, wherein the electrode film is coupled to the collector, wherein the electrode film comprises conductive particles and binder particles.

Koji et al. disclose the claimed invention except for the conductive particles are from a recycled material.

Hirahara et al. teach that it is known in the capacitor art to form carbon powder from a recycled material (sawdust)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a recycled carbon material in the capacitor of Koji et al. since such a modification would provide a high surface area material.

Regarding claim 71, Koji et al. disclose the binder particles are thermoplastic.

Regarding claim 73, Koji et al. disclose the film comprises an activated carbon powder.

8. Claims 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Andelman (US 6,127,474) in view of Hirahara et al. (US 6,094,338).

Andelman discloses an energy storage device product comprising a film, the film including a mix of particles.

Andelman discloses the claimed invention except for the some of the mixed particles are recycled particles.

Hirahara et al. teach that it is known in the capacitor art to form carbon powder from a recycled material (sawdust)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a recycled carbon material in the capacitor of Koji et al. since such a modification would provide a high surface area material.

Regarding claim 7, Andelman discloses the film is self-supporting (high tensile strength).

9. Claims 4, 7-10, 12-13, 59-62 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gozdz et al. (US 5,478,668) in view of Bloch et al. (EP 1009058)

Regarding claim 4, Gozdz discloses an energy storage device, comprising a film, the film including a mix of particles.

Spillman discloses the claimed invention except for the particles are recycled particles.

Bloch et al. teach that it is known in the art to reuse particles from energy storage devices.

It would have been obvious to a person of ordinary skill in the art to use the particles of Block et al. in the energy storage device of Gozdz, since such a modification would provide particles that have been recycled.

Regarding claim 7, Gozdz disclose the film is a self-supporting film.

Regarding claim 8, Gozdz disclose the film comprises a thickness of less than 250 microns.

Regarding claim 9, Gozdz discloses the claimed invention except for the film has a length of 1 meter. It would have been an obvious matter of design choice to form the



length of the film to be at least 1 meter, since such a modification would have involved a mere change in the size of a component, a change in size is generally recognized as being within the level of ordinary skill in the art. *In re. Rose*, 105 USPQ 237 (CCPA 1955).

Regarding claim 10, Gozdz discloses the film is coupled directly to a substrate (see fig. 1).

Regarding claim 12, Gozdz discloses the substrate comprises a collector.

Regarding claim 13, Gozdz discloses the product comprises a collector, wherein the film is coupled directly against a surface of the collector.

Regarding claim 59, Gozdz discloses an energy storage device comprising a housing a collector, the collector having an exposed surface, an electrolyte, the electrolyte is disposed in with the housing, an electrode film, the electrode film comprised of particles, wherein the electrode film is impregnated with the electrolyte, and the electrode film is coupled directly to the exposed film.

Gozdz discloses the claimed invention except for the particles are recycled.

Bloch et al. teach that it is known in the art to reuse particles from energy storage devices.

It would have been obvious to a person of ordinary skill in the art to use the particles of Block et al. in the energy storage device of Gozdz, since such a modification would provide particles that have been recycled.

Regarding claim 60, Gozdz discloses the electrode film is insoluble to the electrode.

Regarding claim 61, Gozdz discloses the binder is insoluble to the electrode.

Regarding claim 62, Gozdz discloses the binder comprises a thermoplastic, wherein the thermoplastic (including particles) couple to the electrode film to the collector.

10. Claims 64 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gozdz et al. (US 5,478,668) in view of Lain (US 6,447,669).

Regarding claim 64, Gozdz et al. disclose an energy storage device structure comprising an electrode film, wherein the electrode film is both conductive and adhesive, and wherein the film is directly coupled to a current collector.

Gozdz et al. disclose the claimed invention except for the electrode film is recyclable.

Lain teaches that it is known to recycle all the components of an energy storage device.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to recycle the particles of Spillman as taught by Lain, since such a modification would allow the energy storage device to be recycled (including the electrode).

11. Claims 69-72, 74 are rejected under 35 U.S.C. 103(a) as being unpatentable over Spillman et al. (US 6,245,464) in view of Bloch et al. (EP 1009058).

Regarding claim 69, Spillman discloses an electrode comprising a collector; a dry process based electrode film, wherein the electrode film is coupled to the collector, wherein the electrode film comprises conductive particles and binder particles.

Bloch et al. teach that it is known in the art to reuse particles from energy storage devices.

It would have been obvious to a person of ordinary skill in the art to use the particles of Block et al. in the energy storage device of Spillman et al, since such a modification would provide particles that have been recycled.

Regarding claim 70, Spillman discloses between the collector and the electrode film there exists only one distinct interface.

Regarding claim 71, Spillman discloses binder particles are thermoplastic.

Regarding claim 72, Spillman discloses the conductive particles are carbon.

Regarding claim 74, Spillman discloses the conductive particles comprise a metal.

12. Claims 39-41, 44-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koji et al. (JP 04067610).

Regarding claim 39, Koji et al. disclose a capacitor comprising a plurality of dry processed particles, the dry process particles including binder and conductive particles.

Koji et al. disclose the claimed invention except for the binder (polymer) is a recycled material.

It is well-known in the art to use recycled polymers (binders). It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form

the binder of Koji et al. from a recycled material, since such a modification would provide a material that was recycled (recycled polymers are general cheaper than new polymers).

Regarding claim 40, Koji et al. disclose at least some of the dry processed particles are formed as a self-supporting dry electrode film (binder & abstract)

Regarding claim 41, Koji et al. disclose the capacitor comprises a current collector, wherein the dry processed particles are bonded to the current collector, and wherein the current collector comprises a metal.

Aluminum current collectors are well known in the art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the current collector of Koji et al. using aluminum, since such a modification would provide a material having a good electroconductivity, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

Regarding claim 44, Koji et al. disclose the claimed invention except for the capacitor is rated to operate at a maximum voltage of 3.0 volts or less. It would have been obvious to one having ordinary skill in the art at the time the invention was made to form the capacitor that is rated to operate at a maximum voltage of 3.0 volts or less, since it has been held that, where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 45, Koji et al. disclose the claimed invention except for the dry electrode film comprises a density of about 0.50 to 0.70 gm/cm<sup>2</sup>. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the electrode so as to have a density of about 0.50 to 0.70 gm/cm<sup>2</sup>, since it has been held that, where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 46, Koji et al. disclose the dry processed particles are compacted into a dry self-supporting electrode film by a single pass compaction device.

Regarding claim 47, Koji et al. disclose the dry processed particles are in a housing (element 12). Koji et al. disclose the claimed invention except for the housing is formed from aluminum. Aluminum is a well-known material used as housing in the capacitor art. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to form the housing from an aluminum material since such a modification would provide a material having a good electroconductivity, and it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. *In re Leshin*, 125 USPQ 416.

13. Claim 76 is rejected under 35 U.S.C. 103(a) as being unpatentable over Koji et al. (JP 04067610) in view of Yoshida (US 5,150,283).

Koji et al. disclose a capacitor comprising a continuous compact self supporting recyclable dry electrode film comprised of a dry mix of dry binder and dry carbon particles, the film coupled to a collector.

Koji et al. disclose the claimed invention except for the collector is shaped into a roll and disposed within a sealed aluminum housing.

Yoshida et al. teach that it is known in the art to wind a capacitor electrode assembly and insert the electrode assembly into a housing.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to wind the capacitor assembly into a roll form as taught by Yoshida, since such a modification would form a compact capacitor element.

14. Claims 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al. (US 6,181,545) in view of Hirahara et al. (US 6,094,338).

Amatucci et al. disclose an energy storage product comprising: a film, the film including a mix of particles, and a collector (11), wherein the film (13) is coupled directly against a surface of the collector, wherein the collector comprises two sides, wherein one film is calendered directly against one side of the collector, and wherein a second film is calendered directly against a second side of the collector (example 1).

Amatucci et al. disclose the claimed invention except for some of the particles are recycled particles.

Hirahara et al. teach that it is known in the capacitor art to form carbon powder from a recycled material (sawdust)

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to use a recycled carbon material in the capacitor of Amatucci et al. since such a modification would provide a high surface area material.

Regarding claim 15, Amatucci et al. disclose the claimed invention except for the foil is treated. It is well known in the capacitor art to treat current collecting foils. It would have been obvious to a person of ordinary skill in the art at the time the invention was made to treat the collecting foil of Amatucci et al., since such a modification would improve the surface area of the foil.

15. Claims 16-17 rejected are under 35 U.S.C. 103(a) as being unpatentable over Amatucci et al. (US 6,181,545) and Hirahara et al. (US 6,094,338) as applied to claim 14 above, and further in view of Yoshida (US 5,150,283).

Regarding claim 16, Amatucci et al. disclose the claimed invention except for the collector is formed to comprise a roll.

Yoshida et al. teach that it is known in the art to wind a capacitor electrode assembly and insert the electrode assembly into a housing.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to wind the capacitor assembly into a roll form as taught by Yoshida, since such a modification would form a compact capacitor element.

Regarding claim 17, Yoshida et al. teach that the housing is aluminum.

***Response to Arguments***

16. Applicant's arguments with respect to claims 26, 39-47, 54-78 have been considered but are moot in view of the new ground(s) of rejection.

***Allowable Subject Matter***

17. Claims 42-43, 48-53 are allowed.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric Thomas whose telephone number is 571-272-1985. The examiner can normally be reached on Monday - Friday 6:30 AM - 3:45 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 571-272-1984. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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ERIC W. THOMAS  
PRIMARY EXAMINER 2-1-06